
 <b>TRANSMITTAL FORM</b> <small>(to be used for all correspondence after initial filing)</small>	Application Number	10/733,451
	Filing Date	December 12, 2003
	First Named Inventor	HAYKIN, Simon
	Art Unit	2643
	Examiner Name	N/A
	Total Number of Pages in This Submission	Attorney Docket Number

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm	Bereskin & Parr		
Signature			
Printed Name	Tony R. Orsi		
Date	February 21, 2005	Reg. No.	55,831

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# Bereskin & Parr

INTELLECTUAL PROPERTY LAW

February 21, 2005



Tony R. Orsi  
B.A.Sc., M.A.Sc. (Elec. Eng.)  
416 957 1603 torsi@bereskinparr.com

Your Reference: 10/733,451  
Our Reference: 3244-83

## INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA  
22313-1450

Dear Sir:

**Re: Information Disclosure Statement  
U.S. Patent Application No. 10/733,451  
For: BINAURAL ADAPTIVE HEARING AID  
Filed: December 12, 2003  
Applicants: HAYKIN, Simon et al.**

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In accordance with 37 C.F.R. 1.97 (b)(3), 1.97 (e)(1) and 1.98, and in recognition of the duty of disclosure set forth in 37 C.F.R. 1.56, the applicant hereby submits an Information Disclosure Statement including (1) a listing, on PTO Form SB/08A, of all patents and other publications of which the applicant is aware that may be considered material to the patentability of its claimed invention, and (2) a copy of each non patent literature document. All of the listed documents are in English.

The Examiner is advised, pursuant to provisions of 37 CFR 1.97(e)(1) that each item on page 1 (i.e. all U.S. patent documents and all foreign patent documents) of the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart for an application not more than three months prior to filing of this statement. In particular, the information was cited in the International Search Report of the corresponding PCT application which was received by the undersigned on February 10, 2005.

A copy of the search report is attached hereto. The undersigned's understanding of the relevance of each document on page 1 (i.e. all U.S. patent documents and all foreign patent documents) is based upon the search report.

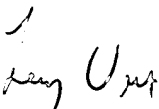
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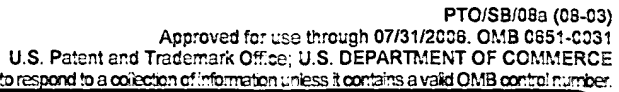
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Please have these documents recorded against the above-mentioned application.

Respectfully submitted,

By:   
\_\_\_\_\_  
Tony R. Orsi  
Registration No. 55,831

/cec  
Encl.



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**Complete if Known**

**(Use as many sheets as necessary)**

Sheet	1	of	4
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<b>Application Number</b>	10/733,451
<b>Filing Date</b>	December 12, 2003
<b>First Named Inventor</b>	HAYKIN, Simon
<b>Art Unit</b>	2643
<b>Examiner Name</b>	N/A
<b>Attorney Docket Number</b>	3244-83

[illegible][illegible]

**Examiner  
Signature**

Date Considered

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STATEMENT BY APPLICANT**

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Sheet 3 of 4

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Application Number	10/733,451
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First Named Inventor	HAYKIN, Simon
Art Unit	2643
Examiner Name	N/A
Attorney Docket Number	3244-83

**NON PATENT LITERATURE DOCUMENTS**

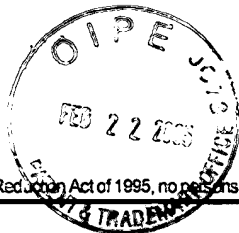
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	12	GREENBERG, J.E., "Improved design of microphone-array hearing-aids", Ph.D. Thesis, 1994, MIT, Cambridge, MA, pp. 34-75, 141-187	
	13	HAYKIN, S., "Kalman Filters", Chapter 10, Adaptive Filter Theory 4th Edition, Prentice Hall, 2002, pp. 466-495	
	14	HEINZ, M.G. et al., "Auditory nerve model for predicting performance limits of normal and impaired listeners", 2001, Acoustics Research Letters Online 2(3):91-96	
	15	HEINZ, M.G., et al., "Quantifying the implications of nonlinear cochlear tuning for auditory-filter estimates", 2002, J. Acoust. Soc. Am., 111, 996-1011	
	16	HOFFMAN, M.W., TRINE, T.D., BUCKLEY, K.M., VAN TASELL, D.J., "Robust adaptive microphone array processing for hearing aids: realistic speech enhancement", J Acoust Soc Am. 1994 Aug; 96 (2 Pt 1): 759-770	
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	18	MATTHEWS, J.W., "Modeling reverse middle ear transmission of acoustic distortion signals," in Mechanics of Hearing: Proceedings of the IUTAM/ICA Symposium, edited by E. de Boer and M.A. Viergever, Delft U.P., Delft, pp. 11-18	
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	20	NOBILI, R., & MAMMANO, F., "Biophysics of the cochlea II: Stationary nonlinear phenomenology", J. Acoust. Soc. Am., 1996, 99(4), Pt. 1, 2244-2255	
	21	PEAKE, W.T., ROSOWSKI, J.J., LYNCH III, T.J., "Middle-ear transmission: Acoustic versus ossicular coupling in cat and human", 1992, Hear. Res., 57, 245-268	
	22	PETERSON, P.M., "Adaptive array processing for multiple microphone hearings-aids", Ph.D. Thesis, 1989, MIT, Cambridge, MA, pp. 37-55, 99-108	

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STATEMENT BY APPLICANT**

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Sheet 2 of 4

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Application Number	10/733,451
Filing Date	December 12, 2003
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Art Unit	2643
Examiner Name	N/A
Attorney Docket Number	3244-83

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	1	BIA, A., "Alopex-B: A new, simpler but yet faster version of the Alopex training algorithm", International Journal of Neural Systems, Special Issue on Non-gradient optimisation methods, pp. 497-507, 2001	
	2	BOUDREAUX-BARTELS, G.F., Parks, T.W., "Time-Varying Filtering and Signal Estimation Using Wigner-Ville Distribution Synthesis Techniques", IEEE Trans. on Acoustic, Speech, and Signal-Processing, 34(3):442-451, June 1986	
	3	BRUCE, I.C.; SACHS, M.B.; YOUNG, E.D., "An auditory-periphery model of the effects of acoustic trauma on auditory nerve responses", JASA 113(1), January 2003, pp. 369-388	
	4	CAMPBELL, D.R., "Binaural sub-band adaptive noise cancellation - some results", University of Paisley, Scotland, UK; presentation	
	5	CAMPBELL, D.R. & Shields, P. "Improvements in intelligibility of noisy reverberant speech using a binaural sub-band adaptive noise-cancellation processing scheme", Journal of the Acoustical Society of America, 110(6), 2001, pp. 3232-3242	
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	7	DOUCET, DE FREITAS, GORDON (eds.), Sequential Monte Carlo methods in practice, Springer-Verlag, 2001, pp. 77-93	
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	9	FRENCH, N.R., STEINERG, J.C., "Factors Governing the Intelligibility of Speech Sounds", 1947, JASA 19, 90-119	
	10	FROST, O.L., "An algorithm for linearly constrained adaptive array processor" Proceedings of the IIE, vol. 60, Aug. 1972, 926-935	
	11	GRIFFITHS, L.J., Jim, C.W. "An alternative approach to linearly constrained adaptive beamforming", IEEE Transactions on Antennas and Propagation, AP-30, Jan. 1982, 27-34	

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	23	SACHS, M.B. et al., Biological basis of hearing-aid design, (Center for Hearing Sciences and Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD, 21205, U.S.A.) Ann Biomed Eng 30 2002 Feb pp. 157-68	
	24	SCHWARTZ, O. and SIMONCELLI, E., Natural sound statistics and divisive normalization in the auditory system, Advances in Neural Information Processing Systems 13, T.K. Leen, T.G. Dietterich and V. Tresp (eds), MIT Press, Cambridge, MA 2001 pp 1-7	
	25	SOEDE, W., BERKHOUT, A.J., and BILSEN, F.A., "Development of a directional hearing instrument based on array technology" J. Acoust. Soc. Am. 94, 785 (1993)	
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	28	TANG, Z., et al., "Genetic Algorithms and their Applications", IEEE Signal Processing Magazine, pages 22-37, Nov. 1996	
	29	UNNIKRISHNAN, K.P. and VENUGOPAL, K.P., "Alopex: A correlation-based learning algorithm for feedforward and recurrent neural networks", Neural Computation, 6(3), May 1994	
	30	VANDEN BERGHE, J. and WOUTERS, J., "An adaptive noise canceller for hearing aids using two nearby microphones", J. Acoust. Soc. Am. 103(6), June 1998, pp. 3621-3626	
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